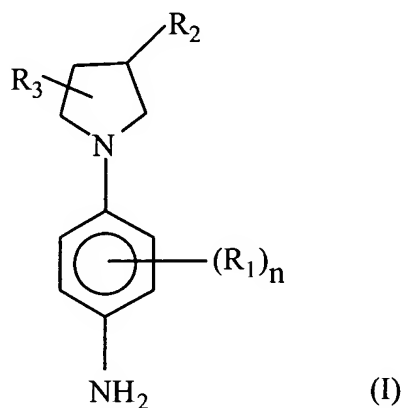


I. AMENDMENT

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A dyeing composition for dyeing keratinous fibres comprising, in an appropriate dyeing medium, at least one cationic tertiary para-phenylenediamine containing a pyrrolidine ring, and at least one organic diacid compound, wherein said cationic tertiary paraphenylenediamine containing a pyrrolidine ring corresponds to formula I:



in which

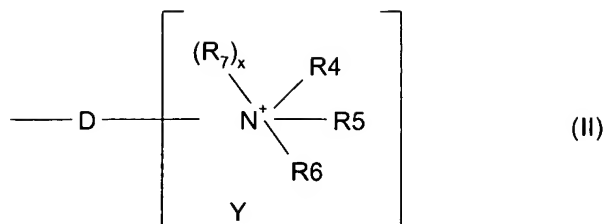
n varies from 0 to 4, it being understood that when n is greater than or equal to 2, then the radicals R_1 may be identical or different,

R_1 represents a halogen atom; a saturated or unsaturated, aliphatic or alicyclic, C_1 - C_6 hydrocarbon chain, it being possible for the chain to contain one or more oxygen, nitrogen, silicon or sulphur atoms or an SO_2 group, and it being possible for the chain to be substituted with one or more hydroxyl or amino radicals; an onium radical Z, the radical R_1 not containing a peroxide bond, or diazo, nitro or nitroso radicals,

R₂ represents an onium radical Z or a radical -X-C=NR₈-NR₉R₁₀ in which X represents an oxygen atom or a radical -NR₁₁ and R₈, R₉, R₁₀ and R₁₁ represent a hydrogen atom, a C₁-C₄ alkyl radical or a C₁-C₄ hydroxyalkyl radical.

R₃ represents a hydrogen atom or a hydroxyl radical.

2. (Canceled)
3. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that n is equal to 0.
4. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that n is equal to 1 and R₁ is chosen from the group consisting of a halogen atom; a saturated or unsaturated, aliphatic or alicyclic, C₁-C₆ hydrocarbon chain; it being possible for one or more carbon atoms to be replaced by an oxygen, nitrogen, silicon or sulphur atom, or by an SO₂ group, the radical R₁ not containing a peroxide bond, or diazo, nitro or nitroso radicals.
5. (Currently Amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that R₁ is chosen from chlorine, bromine, C₁-C₄ alkyl, C₁-C₄ hydroxyalkyl, C₁-C₄ aminoalkyl, C₁-C₄ alkoxy or C₁-C₄ hydroxyalkoxy radicals.
6. (Original) The composition of claim 5, in which the cationic tertiary para-phenylenediamine is such that R₁ is chosen from a methyl, hydroxymethyl, 2-hydroxyethyl, 1,2-dihydroxyethyl, methoxy, isopropoxy or 2-hydroxyethoxy radical.
7. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula (II)



in which

D is a single bond of a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from oxygen, sulphur or nitrogen, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and which may carry one or more ketone functional groups;

R₄, R₅ and R₆, taken separately, represent a C₁-C₁₅ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ amidoalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is mono- or di-substituted with a C₁-C₄ alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; or

R₄, R₅ and R₆ together, in pairs, form, with the nitrogen atom to which they are attached, a 4-, 5-, 6- or 7-membered saturated carbon ring which may contain one or more heteroatoms, it being possible for the cationic ring to be substituted with a halogen atom, a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxy-alkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a carboxyl radical, a (C₁-C₆)alkylcarbonyl radical, a thio (-SH) radical, a C₁-C₆ thioalkyl (-R-SH) radical, a (C₁-C₆)alkylthio radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical;

R₇ represents a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphinyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphonyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylsulphonamido(C₁-C₆)alkyl radical;

x is 0 or 1,

when x = 0, then the linking arm is attached to the nitrogen atom carrying the radicals R₄ to R₆;

when x = 1, then two of the radicals R₄ to R₆ form, together with the nitrogen atom to which they are attached, a 4-, 5-, 6- or 7-membered saturated ring and D is linked to the carbon atom of the saturated ring;

Y is a counter-ion.

8. (Original) The composition of claim 7, in which the cationic tertiary para-phenylenediamine is such that R₂ corresponds to formula II in which x is equal to 0 and R₄, R₅ and R₆ separately are preferably chosen from a C₁-C₆ alkyl radical, a C₁-C₄ monohydroxyalkyl radical, a C₂-C₄ polyhydroxyalkyl radical, a (C₁-C₆)alkoxy(C₁-C₄)alkyl radical, a C₁-C₆ amidoalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, or R₄ with R₅ form together an azetidine ring, a pyrrolidine, piperidine, piperazine or morpholine ring, R₆ being chosen in this case from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ aminoalkyl radical, an aminoalkyl radical which is mono- or di-substituted with a (C₁-C₆)alkyl radical, a (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkyl carboxy(C₁-

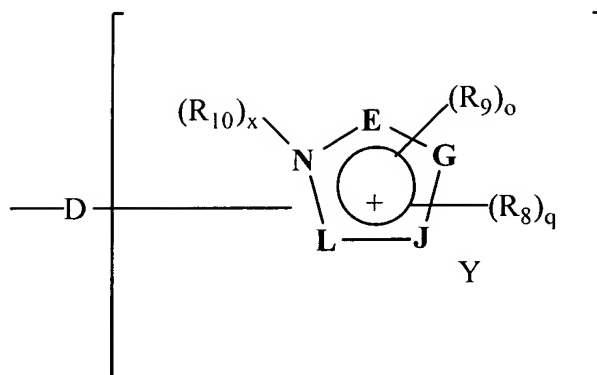
C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical.

9. (Original) The composition of claim 7, in which the cationic tertiary para-phenylenediamine is such that R₂ corresponds to formula II in which x is equal to 1 and R₇ is chosen from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a C₁-C₆ aminoalkyl radical, a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or a (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; R₄ with R₅ together form an azetidine, pyrrolidine, piperidine, piperazine or morpholine ring, R₆ being chosen in this case from a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyl alkyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carbamylalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical.

10. (Original) The composition of claim 7, in which the cationic tertiary para-phenylenediamine is such that D is a single bond or an alkylene chain which may be substituted.

11. (Original) The composition of claim 7, in which the cationic tertiary para-phenylenediamine is such that R₂ is a trialkylammonium radical.

12. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that R₂ represents the onium radical Z corresponding to formula III



(III)

in which

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from oxygen, sulphur or nitrogen, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals, and which may carry one or more ketone functional groups;

the vertices E, G, J, L, which are identical or different, represent a carbon, oxygen, sulphur or nitrogen atom to form a pyrrole, pyrazole, imidazole, triazole, oxazole, isooxazole, thiazole, isothiazole ring,

q is an integer between 0 and 4 inclusive;

is an integer between 0 and 3 inclusive;

q+o is an integer between 0 and 4;

the radicals R₈, which are identical or different, represent a halogen atom, a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a carboxyl radical, a C₁-C₆ alkylcarbonyl radical, a thio radical, a C₁-C₆ thioalkyl radical, a (C₁-C₆)alkylthio radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-

C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ monohydroxyalkyl radical or a C₂-C₆ polyhydroxyalkyl radical; it being understood that the radicals R₈ are carried by a carbon atom,

the radicals R₉, which are identical or different, represent a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical, a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical, a benzyl radical; it being understood that the radicals R₉ are carried by a nitrogen,

R₁₀ represents a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical, a C₁-C₆ aminoalkyl radical whose amine is substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphonyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphonyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylsulphonamido(C₁-C₆)alkyl radical;

x is 0 or 1

when x = 0, the linking arm D is attached to the nitrogen atom,

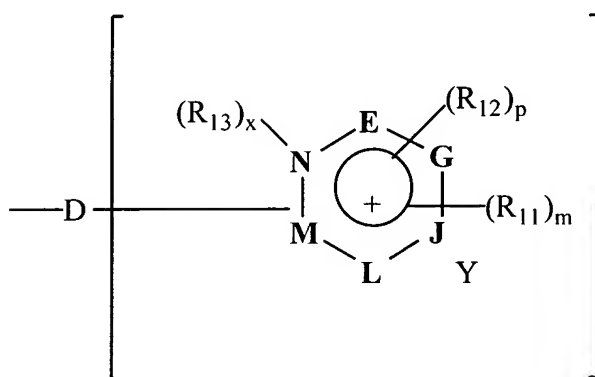
when x = 1, the linking arm D is attached to one of the vertices E, G, J or L,

Y is a counter-ion.

13. (Original) The composition of claim 12, in which the cationic tertiary para-phenylenediamine is such that the vertices E, G, J and L form an imidazole ring.

14. (Original) The composition of claim 12, in which the cationic tertiary para-phenylenediamine is such that x is equal to 0, D is a single bond or an alkylene chain which may be substituted.

15. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that R₂ represents an onium radical Z corresponding to formula IV



(IV)

in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from an oxygen, sulphur or nitrogen atom, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals, and which may carry one or more ketone functional groups;

the vertices E, G, J, L and M, which are identical or different, represent a carbon, oxygen, sulphur or nitrogen atom to form a ring chosen from the pyridine, pyrimidine, pyrazine, triazine and pyridazine rings;

p is an integer between 0 and 3 inclusive;

m is an integer between 0 and 5 inclusive;

p+m is an integer between 0 and 5;

the radicals R_{11} , which are identical or different, represent a halogen atom, a hydroxyl radical, a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a C_1 - C_6 alkoxy radical, a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical, an amido radical, a carboxyl radical, a C_1 - C_6 alkylcarbonyl radical, a thio radical, a C_1 - C_6 thioalkyl radical, a (C_1 - C_6)alkylthio radical, an amino radical, an amino radical which is substituted with a (C_1 - C_6)alkyl, (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 monohydroxyalkyl radical or a C_2 - C_6 polyhydroxyalkyl radical; it being understood that the radicals R_{11} are carried by a carbon atom,

the radicals R_{12} , which are identical or different, represent a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical, a (C_1 - C_6)alkoxy(C_1 - C_6)alkyl radical, a C_1 - C_6 carbamylalkyl radical, a (C_1 - C_6)alkylcarboxy(C_1 - C_6)alkyl radical, a benzyl radical; it being understood that the radicals R_{12} are carried by a nitrogen,

R_{13} represents a C_1 - C_6 alkyl radical; a C_1 - C_6 monohydroxyalkyl radical; a C_2 - C_6 polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C_1 - C_6 aminoalkyl radical, a C_1 - C_6 aminoalkyl radical whose amine is mono- or di-substituted with a (C_1 - C_6)alkyl, (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 carboxyalkyl radical; a C_1 - C_6 carbamylalkyl radical; a C_1 - C_6 trifluoroalkyl radical; a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical; a C_1 - C_6 sulphonamidoalkyl radical; a (C_1 - C_6)alkylcarboxy(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylsulphonyl(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylsulphonyl(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylcarbonyl(C_1 - C_6)alkyl radical; an N-(C_1 - C_6)alkylcarbamyl(C_1 - C_6)alkyl radical; an N-(C_1 - C_6)alkylsulphonamido(C_1 - C_6)alkyl radical;

x is 0 or 1

when $x = 0$, the linking arm D is attached to the nitrogen atom,

when $x = 1$, the linking arm D is attached to one of the vertices E, G, J, L or M,

Y is a counter-ion.

16. (Original) The composition of claim 15, in which the vertices E, G, J, L and M form, with the nitrogen of the ring, a ring chosen from pyridine and pyrimidine rings.

17. (Original) The composition of claim 15, in which the cationic tertiary para-phenylenediamine is such that x is equal to 0 and R_{11} is chosen from a hydroxyl radical, a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a C_1 - C_6 alkoxy radical, a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical, an amido radical, a C_1 - C_6 alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di-substituted with a (C_1 - C_6)alkyl, a (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 monohydroxyalkyl radical or a C_2 - C_6 polyhydroxyalkyl radical and R_{12} is chosen from a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical, a (C_1 - C_6)alkoxy(C_1 - C_6)alkyl radical, a C_1 - C_6 carbamylalkyl radical.

18. (Original) The composition of claim 15, in which the cationic tertiary para-phenylenediamine is such that x is equal to 1 and R_{13} is chosen from a C_1 - C_6 alkyl radical; a C_1 - C_6 monohydroxyalkyl radical; a C_2 - C_6 polyhydroxyalkyl radical; a C_1 - C_6 aminoalkyl radical, a C_1 - C_6 aminoalkyl radical whose amine is mono- or di-substituted with a (C_1 - C_6)alkyl radical, a (C_1 - C_6)alkylcarbonyl radical, an amido radical, a (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 carbamylalkyl radical; a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylcarbonyl(C_1 - C_6)alkyl radical; an N-(C_1 - C_6)alkylcarbamyl(C_1 - C_6)alkyl radical; R_{11} is chosen from a hydroxyl radical, a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a C_1 - C_6 alkoxy radical, a tri(C_1 - C_6)alkylsilane(C_1 - C_6)alkyl radical, an amido radical, a C_1 - C_6 alkylcarbonyl radical, an amino radical, an amino radical which is mono- or di-substituted with a (C_1 - C_6)alkyl, (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; and R_{12} is chosen from a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl

radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical.

19. (Original) The composition of claim 15, in which the cationic tertiary para-phenylenediamine is such that R₁₁, R₁₂ and R₁₃ are alkyl radicals which may be substituted.

20. (Currently amended) The composition of claim 12, in which the cationic tertiary para-phenylenediamine is such that the radical R₂ is the radical of formula -XP(O)(O-)OCH₂CH₂N⁺(CH₃)₃ where X represents an oxygen atom or a radical -NR₁₄, R₁₄ representing a hydrogen, a C₁-C₄ alkyl radical or a hydroxyalkyl radical.

21. (Currently amended) The composition of claim [[2]] 1, in which the cationic tertiary para-phenylenediamine is such that the radical R₂ is a guanidine radical of formula -X-C=NR₈-NR₉R₁₀, X represents an oxygen atom or a radical -NR₁₁, R₈, R₉, R₁₀ and R₁₁ representing a hydrogen, a C₁-C₄ alkyl radical or a hydroxyalkyl radical.

22. (Original) The composition of claim 1, in which the cationic tertiary para-phenylene is chosen from the group consisting of

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride,

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide

N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethyl- guanidinium chloride

N-[1-(4-Aminophenyl)pyrrolidin-3-yl] guanidinium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropyl)ammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]-(trimethylammonium-hexyl)dimethylammonium dichloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]oxophosphorylcholine

{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}trimethylammonium chloride

1-{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpyrrolidinium chloride

3-{3-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-ium chloride

1-{2-[1-(4-Aminophenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpiperidinium chloride

3-{3-[1-(5-trimethylsilanylethyl-4-Amino-3- trimethylsilanylethylphenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-um chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethyammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride

N'-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-N,N-dimethyl guanidinium chloride

N-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl] guanidinium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropylammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(trimethylammoniumhexyl-dimethylammonium dichloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]oxophosphorylcholine

{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}trimethylammonium chloride

1-{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpyrrolidinium chloride

3-{3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]-propyl} 1-methyl-3H-imidazol-1-um chloride

1-{2-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yloxy]ethyl}-1-methylpiperidinium chloride

[1-(4-Amino-3-trimethylsilanylethylphenyl)pyrrolidin-3-yl]trimethylammonium chloride

3-[1-(4-Amino-3-trimethylsilanylethylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

3-{3-[1-(4-Amino-3-trimethylsilanylethylphenyl)pyrrolidin-3-yloxy]propyl}-1-methyl-3H-imidazol-1-um chloride

[1-(5-trimethylsilanylethyl-4-Amino-3-trimethylsilanylethylphenyl)pyrrolidin-3-yl]trimethylammonium chloride

3-[1-(5-trimethylsilanylethyl-4-Amino-3-trimethylsilanylethylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride

1'-(4-Amino-3-methylphenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride

3-{[1-(4-Aminophenyl)pyrrolidin-3-ylcarbamoyl]methyl}-1-methyl-3H-imidazol-1-ium chloride

3-{[1-(4-Amino-3-methylphenyl)pyrrolidin-3-ylcarbamoyl]methyl}-1-methyl-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium
chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium iodide,

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium methanesulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]heptyltrimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]octyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium iodide.

23. (Original) The composition of claim 1, in which the cationic tertiary para-phenylene is chosen from the group consisting of [1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride;

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide;

N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethyl guanidinium chloride

N-[1-(4-Aminophenyl)pyrrolidin-3-yl] guanidinium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride;

[1-(4-Aminophenyl)pyrrolidin-3-yl](2-hydroxyethyl)dimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilanylpropyl)ammonium chloride;

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]trimethylammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyltetradecylammonium chloride

N'-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-N,N-dimethyl guanidinium chloride

N-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl] guanidinium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride

[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilanylpropyl)ammonium chloride

1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride

1'-(4-Amino-3-methylphenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride

3-{[1-(4-Aminophenyl)pyrrolidin-3-ylcarbamoyl]methyl}-1-methyl-3H-imidazol-1-ium chloride

3-{[1-(4-Amino-3-methylphenyl)pyrrolidin-3-ylcarbamoyl]methyl}-1-methyl-3H-imidazol-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilanyl-propyl)-3H-imidazol-1-ium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyltrimethylammonium iodide

[1-(4-Aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium iodide,

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyltrimethylammonium methosulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]heptyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]octyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyltrimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyltrimethylammonium iodide.

24. (Original) The composition of claim 1, in which the cationic tertiary para-phenylene is chosen from the group consisting of [1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyltetradecylammonium bromide

N'-[1-(4-Aminophenyl)pyrrolidin-3-yl]-N,N-dimethyl guanidinium chloride

N-[1-(4-Aminophenyl)pyrrolidin-3-yl] guanidinium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]dimethyl-(3-trimethylsilylpropyl)ammonium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]-(trimethylammoniumhexyl)dimethylammonium dichloride

1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium chloride

3-[1-(4-Amino-3-methylphenyl)pyrrolidin-3-yl]-1-(3-trimethylsilylpropyl)-3H-imidazol-1-ium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]ethyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium iodide,

[1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium bromide

[1-(4-aminophenyl)pyrrolidin-3-yl]propyldimethylammonium methosulphate

[1-(4-aminophenyl)pyrrolidin-3-yl]butyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]pentyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]heptyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]octyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]decyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hexadecyldimethylammonium iodide

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium chloride

[1-(4-aminophenyl)pyrrolidin-3-yl]hydroxyethyl dimethylammonium iodide.

25. (Original) The composition of claim 1, in which the cationic tertiary para-phenylene is chosen from the group consisting of

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride

3-[1-(4-Aminophenyl)pyrrolidin-3-yl]-1-methyl-3H-imidazol-1-ium chloride

[1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride

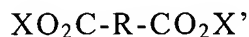
1'-(4-Aminophenyl)-1-methyl-[1,3']bipyrrolidinyl-1-ium chloride.

26. (Original) The composition of claim 1, in which the cationic tertiary para-phenylene is chosen from the group consisting of

[1-(4-Aminophenyl)pyrrolidin-3-yl]trimethylammonium chloride, and [1-(4-Aminophenyl)pyrrolidin-3-yl]-(2-hydroxyethyl)dimethylammonium chloride.

27. (Original) The composition of claim 1, in which the organic diacid compound is chosen from dicarboxylic acids, salts thereof and mixtures thereof.

28. (Original) The composition of claim 27, such that the organic diacid compound is chosen from the compounds of formula (V) and mixtures thereof:



(V)

in which R is a cyclic or acyclic, saturated or unsaturated, linear or branched, C₂-C₁₀₀ hydrocarbon radical optionally interrupted by 1 to 30 heteroatoms chosen from O, N and S, and optionally substituted with 1 to 30 substituents chosen from a hydrogen atom, a hydroxyl (-OH) radical, an amino (-NH₂) radical, a (C₁-C₃₀)alkylamino radical, a poly(C₁-C₃₀)alkylamino radical, a hydroxy(C₁-C₃₀)alkylamino radical, a polyhydroxy(C₁-C₃₀)alkylamino radical, a C₆-C₃₀, preferably C₆-C₁₅, aryl radical,

X and X', independently of each other, denote a hydrogen atom, an ammonium ion, a ion of an alkali metal such as Li, Na, K, or an alkaline earth metal such as Be, Mg, Ca or an ion derived from an organic amine.

29. (Original) The composition of claim 28, such that the compounds of formula (V) and mixtures thereof are such that R is a saturated, linear, C₂-C₁₀₀ hydrocarbon radical.

30. (Original) The composition of claim 28, such that the compounds of formula (V) and mixtures thereof are such that X and X' are hydrogen atoms.

31. (Original) The composition of claim 28, such that the compounds of formula (V) and mixtures thereof are chosen from succinic acid, adipic acid, malic acid and malonic acid.

32. (Original) The composition of claim 28, such that the compounds of formula (V) and mixtures thereof are such that R is an unsaturated C₁₀-C₁₀₀ hydrocarbon radical containing at least one double bond.

33. (Original) The composition of claim 32, in which the diacid is dilinoleic acid or maleic acid.

34. (Currently amended) The composition of claim 1, in which the cationic tertiary para-phenylenediamine(s) having a pyrrolidine ring represent from 0.001 to 10%, ~~and preferably from 0.005 to 6%~~ by weight relative to the total weight of the composition.

35. (Currently amended) The composition of claim 1, in which the organic diacid compound(s) represent from 0.01% to 30% by weight ~~and preferably from 0.01% to 15% by weight~~ relative to the total weight of the composition.
36. (Original) The composition of claim 1, such that it additionally contains at least one cationic polymer.
37. (Original) The composition of claim 1, such that it additionally contains at least one thickening polymer.
38. (Original) The composition of claim 1, such that it additionally contains at least one surfactant chosen from the group consisting of anionic surfactants, amphoteric or zwitterionic surfactants, nonionic surfactants and cationic surfactants.
39. (Original) The composition of claim 1, such that it comprises at least one additional oxidation base other than cationic tertiary para-phenylenediamines having a pyrrolidine ring chosen from para-phenylenediamines, bis-phenylalkylenediamines, para-aminophenols, ortho-aminophenols, heterocyclic bases and their addition salts.
40. (Currently amended) The composition of claim 39, in which the additional oxidation base(s) are present in a quantity of between 0.001 to 20% by weight ~~and preferably between 0.005 and 6% by weight~~ relative to the total weight of the composition.
41. (Original) The composition of claim 1, such that it additionally comprises at least one coupler chosen from meta-phenylenediamines, meta-aminophenols, meta-diphenols, naphthalene couplers, heterocyclic couplers and their addition salts.
42. (Original) The composition of claim 41, such that the coupler is chosen from 1,3-dihydroxybenzene, 1,3-dihydroxy-2-methylbenzene, 4-chloro-1,3-dihydroxybenzene, 2,4-diamino-1-(β -hydroxyethyloxy)benzene, 2-amino-4-(β -hydroxyethylamino)-1-methoxybenzene, 1,3-diaminobenzene, 1,3-bis(2,4-diaminophenoxy)propane, 3-ureidoaniline, 3-ureido-1-dimethylaminobenzene, sesamol, 1- β -hydroxyethylamino-3,4-methylenedioxybenzene, α -naphthol, 2-methyl-1-naphthol, 6-hydroxyindole, 4-hydroxyindole, 4-hydroxy-N-methylindole, 2-amino-3-hydroxypyridine, 6-hydroxybenzomorpholine, 3,5-diamino-2,6-

dimethoxypyridine, 1-N-(β -hydroxyethyl)amino-3,4-methylenedioxybenzene, 2,6-bis(β -hydroxyethylamino)toluene and their addition salts.

43. (Currently amended) The composition of claim 41, such that the coupler(s) are present in a quantity of between 0.001 and 20%, ~~preferably between 0.005 and 6%~~ by weight relative to the total weight of the composition.

44. (Original) The composition of claim 1, such that it additionally comprises at least one direct dye.

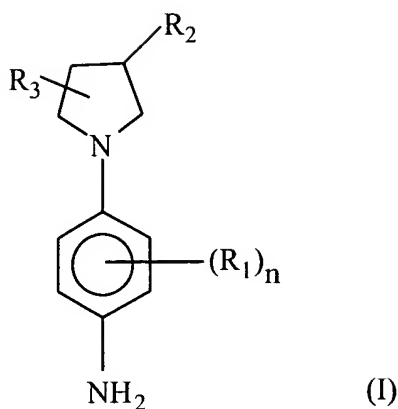
45. (Original) The composition of claim 1, such that it additionally comprises at least one hydroxylated solvent such as ethanol, propylene glycol, glycerol, polyol monoethers.

46. (Original) The composition of claim 1, such that it comprises at least one oxidizing agent chosen from hydrogen peroxide, urea peroxide, alkali metal bromates, persalts, peracids and oxidase enzymes, and preferably hydrogen peroxide.

47. (Original) A method for the oxidation dyeing of keratinous fibres, characterized in that a dyeing composition as defined in claim 1 is applied to the fibres in the presence of an oxidizing agent.

48. (Original) A multicompartment device in which the first compartment contains a dyeing composition for dyeing keratinous fibres, as defined in claim 1, and a second compartment contains an oxidizing agent.

49. (New) A dyeing composition for dyeing keratinous fibres comprising, in an appropriate dyeing medium, at least one cationic tertiary para-phenylenediamine containing a pyrrolidine ring, and at least one organic diacid compound, wherein said cationic tertiary paraphenylenediamine containing a pyrrolidine ring corresponds to formula I:



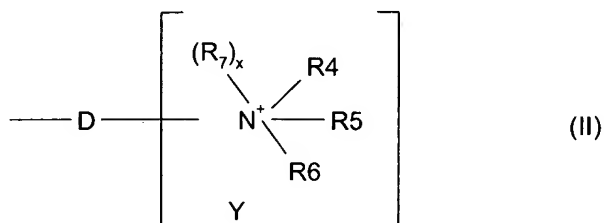
in which

n varies from 0 to 4, it being understood that when n is greater than or equal to 2, then the radicals R_1 may be identical or different,

R_1 represents a halogen atom; a saturated or unsaturated, aliphatic or alicyclic, C_1 - C_6 hydrocarbon chain, it being possible for the chain to contain one or more oxygen, nitrogen, silicon or sulphur atoms or an SO_2 group, and it being possible for the chain to be substituted with one or more hydroxyl or amino radicals; an onium radical Z, the radical R_1 not containing a peroxide bond, or diazo, nitro or nitroso radicals,

R_3 represents a hydrogen atom or a hydroxyl radical;

R_2 represents an onium radical Z selected from formula (II), formula (III) or formula (IV), wherein formula (II) corresponds to:



in which

D is a single bond of a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from oxygen, sulphur or nitrogen, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals and which may carry one or more ketone functional groups;

R₄, R₅ and R₆, taken separately, represent a C₁-C₁₅ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ amidoalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is mono- or di-substituted with a C₁-C₄ alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; or

R₄, R₅ and R₆ together, in pairs, form, with the nitrogen atom to which they are attached, a 4-, 5-, 6- or 7-membered saturated carbon ring which may contain one or more heteroatoms, it being possible for the cationic ring to be substituted with a halogen atom, a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a carboxyl radical, a (C₁-C₆)alkylcarbonyl radical, a thio (-SH) radical, a C₁-C₆ thioalkyl (-R-SH) radical, a (C₁-C₆)alkylthio radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical;

R₇ represents a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical whose amine is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphinyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphonyl(C₁-C₆)alkyl radical; a

(C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylsulphonamido(C₁-C₆)alkyl radical;

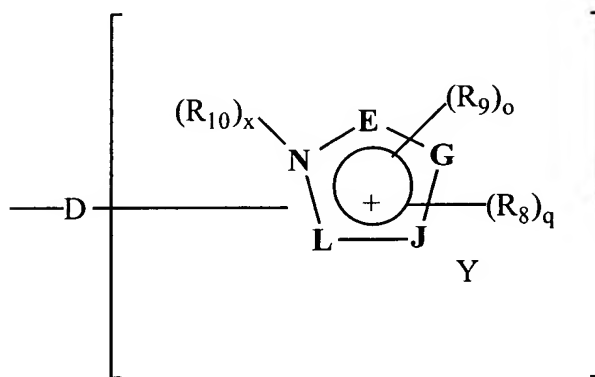
x is 0 or 1,

when x = 0, then the linking arm is attached to the nitrogen atom carrying the radicals R₄ to R₆; with the proviso that when the linking arm D is a covalent bond then R₄ is chosen from or an aryl radical; a benzyl radical; a C₁-C₆ amidoalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ aminoalkyl radical; a C₁-C₆ aminoalkyl radical in which the amine is mono- or di-substituted with a C₁-C₄ alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; or;

when x = 1, then two of the radicals R₄ to R₆ form, together with the nitrogen atom to which they are attached, a 4-, 5-, 6- or 7-membered saturated ring and D is linked to the carbon atom of the saturated ring;

Y is a counter-ion;

and formula (III) corresponds to:



(III)

in which

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from oxygen, sulphur or nitrogen, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals, and which may carry one or more ketone functional groups;

the vertices E, G, J, L, which are identical or different, represent a carbon, oxygen, sulphur or nitrogen atom to form a pyrrole, pyrazole, imidazole, triazole, oxazole, isooxazole, thiazole, isothiazole ring,

q is an integer between 0 and 4 inclusive;

o is an integer between 0 and 3 inclusive;

q+o is an integer between 0 and 4;

the radicals R₈, which are identical or different, represent a halogen atom, a hydroxyl radical, a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a C₁-C₆ alkoxy radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, an amido radical, a carboxyl radical, a C₁-C₆ alkylcarbonyl radical, a thio radical, a C₁-C₆ thioalkyl radical, a (C₁-C₆)alkylthio radical, an amino radical, an amino radical which is mono- or di-substituted with a (C₁-C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ monohydroxyalkyl radical or a C₂-C₆ polyhydroxyalkyl radical; it being understood that the radicals R₈ are carried by a carbon atom,

the radicals R₉, which are identical or different, represent a C₁-C₆ alkyl radical, a C₁-C₆ monohydroxyalkyl radical, a C₂-C₆ polyhydroxyalkyl radical, a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical, a (C₁-C₆)alkoxy(C₁-C₆)alkyl radical, a C₁-C₆ carbamylalkyl radical, a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical, a benzyl radical; it being understood that the radicals R₉ are carried by a nitrogen,

R₁₀ represents a C₁-C₆ alkyl radical; a C₁-C₆ monohydroxyalkyl radical; a C₂-C₆ polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C₁-C₆ aminoalkyl radical, a C₁-C₆ aminoalkyl radical whose amine is substituted with a (C₁-

C₆)alkyl, (C₁-C₆)alkylcarbonyl, amido or (C₁-C₆)alkylsulphonyl radical; a C₁-C₆ carboxyalkyl radical; a C₁-C₆ carbamylalkyl radical; a C₁-C₆ trifluoroalkyl radical; a tri(C₁-C₆)alkylsilane(C₁-C₆)alkyl radical; a C₁-C₆ sulphonamidoalkyl radical; a (C₁-C₆)alkylcarboxy(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphinyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylsulphonyl(C₁-C₆)alkyl radical; a (C₁-C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylsulphonamido(C₁-C₆)alkyl radical;

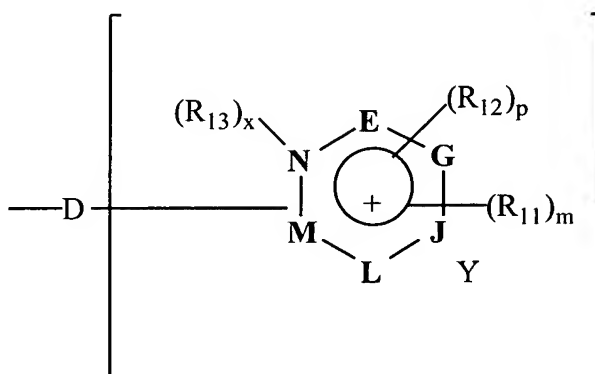
x is 0 or 1

when x = 0, the linking arm D is attached to the nitrogen atom,

when x = 1, the linking arm D is attached to one of the vertices E, G, J or L,

Y is a counter-ion;

and formula (IV) corresponds to:



(IV)

in which:

D is a single bond or a linear or branched C₁-C₁₄ alkylene chain which may contain one or more heteroatoms chosen from an oxygen, sulphur or nitrogen atom, and which may be substituted with one or more hydroxyl, C₁-C₆ alkoxy or amino radicals, and which may carry one or more ketone functional groups;

the vertices E, G, J, L and M, which are identical or different, represent a carbon, oxygen, sulphur or nitrogen atom to form a ring chosen from the pyridine, pyrimidine, pyrazine, triazine and pyridazine rings;

p is an integer between 0 and 3 inclusive;

m is an integer between 0 and 5 inclusive;

p+m is an integer between 0 and 5;

the radicals R_{11} , which are identical or different, represent a halogen atom, a hydroxyl radical, a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a C_1 - C_6 alkoxy radical, a $\text{tri}(C_1$ - $C_6)$ alkylsilane(C_1 - C_6)alkyl radical, an amido radical, a carboxyl radical, a C_1 - C_6 alkylcarbonyl radical, a thio radical, a C_1 - C_6 thioalkyl radical, a (C_1 - C_6)alkylthio radical, an amino radical, an amino radical which is substituted with a (C_1 - C_6)alkyl, (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 monohydroxyalkyl radical or a C_2 - C_6 polyhydroxyalkyl radical; it being understood that the radicals R_{11} are carried by a carbon atom,

the radicals R_{12} , which are identical or different, represent a C_1 - C_6 alkyl radical, a C_1 - C_6 monohydroxyalkyl radical, a C_2 - C_6 polyhydroxyalkyl radical, a $\text{tri}(C_1$ - $C_6)$ alkylsilane(C_1 - C_6)alkyl radical, a (C_1 - C_6)alkoxy(C_1 - C_6)alkyl radical, a C_1 - C_6 carbamylalkyl radical, a (C_1 - C_6)alkylcarboxy(C_1 - C_6)alkyl radical, a benzyl radical; it being understood that the radicals R_{12} are carried by a nitrogen,

R_{13} represents a C_1 - C_6 alkyl radical; a C_1 - C_6 monohydroxyalkyl radical; a C_2 - C_6 polyhydroxyalkyl radical; an aryl radical; a benzyl radical; a C_1 - C_6 aminoalkyl radical, a C_1 - C_6 aminoalkyl radical whose amine is mono- or di-substituted with a (C_1 - C_6)alkyl, (C_1 - C_6)alkylcarbonyl, amido or (C_1 - C_6)alkylsulphonyl radical; a C_1 - C_6 carboxyalkyl radical; a C_1 - C_6 carbamylalkyl radical; a C_1 - C_6 trifluoroalkyl radical; a $\text{tri}(C_1$ - $C_6)$ alkylsilane(C_1 - C_6)alkyl radical; a C_1 - C_6 sulphonamidoalkyl radical; a (C_1 - C_6)alkylcarboxy(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylsulphinyl(C_1 - C_6)alkyl radical; a (C_1 - C_6)alkylsulphonyl(C_1 - C_6)alkyl radical; a (C_1 -

C₆)alkylcarbonyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylcarbamyl(C₁-C₆)alkyl radical; an N-(C₁-C₆)alkylsulphonamido(C₁-C₆)alkyl radical;

x is 0 or 1

when x = 0, the linking arm D is attached to the nitrogen atom,

when x = 1, the linking arm D is attached to one of the vertices E, G, J, L or M,

Y is a counter-ion.